

RUBY LAKE NATIONAL WILDLIFE REFUGE
RUBY VALLEY, NEVADA

NARRATIVE REPORT

1968

REFUGE PERSONNEL

Permanent

Donald Lewis	Refuge Manager	Trans. 8/23/68
Lynn Howard	Refuge Manager	E.O.D. 9/8/68
James Creasy	Asst. Manager	Trans. 5/31/68
Mark Barber	Asst. Manager	6/16-10/20/68
Lowell Napier	Asst. Manager	E.O.D. 10/20/68
Virginia Lewis	Clerk-Typist	Resigned 8/23/68
Claire Morrow	Clerk-Typist	10/7-12/20/68
Gerald Morrow	Maintenanceman II	

Temporary

Joseph Jarvis	Biological Technician	7/14-9/27/68
Bruce Aranguena	Laborer	7/28-8/20/68
Fred Gallegus	Y.O.C.	7/8-8/30/68
Micheal Green	Laborer	6/17-9/13/68

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORTS FISHERIES AND WILDLIFE
RUBY VALLEY, NEVADA

C O N T E N T S

Page

I. General

A. Weather Conditions.	1
B. Habitat Conditions.	1-2
1. Water	1
2. Food and Cover.	2

II. Wildlife

A. Migratory Birds	3-5
B. Upland Game Birds	5
C. Big Game Animals.	5-6
D. Fur Animals, Predators, Rodents, and other Mammals.	6-7
E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies	7
F. Other Birds	7
G. Fish.	7-9
H. Reptiles.	9
I. Disease	9

III. Refuge Development and Maintenance

A. Physical Development.	10
B. Plantings	10-11
C. Collections and Receipts.	11
D. Control of Vegetation	11
E. Planned Burning	11
F. Fires	11

IV. Resource Management

A. Grazing	12
B. Haying.	12
C. Fur Harvest	12-13
D. Timber Removal.	13
E. Commercial Fishing.	13
F. Other Uses.	13

V. Field Investigation or Applied Research

A. Progress Report Hydrologic Investigations	14
B. Waterfowl Banding	14-17
C. Dove Banding	17
D. Passerine and Other Bird Banding.	18
E. Canada Goose Nesting Platforms.	19
F. Marsh Management Study	19

VI. Public Relations

A. Recreational Uses	20
B. Refuge Visitors	20-21
C. Refuge Participation.	21
D. Hunting	22
E. Violations.	22-23
F. SAFETY.	23-24

VII. Other Items

A. Items of Interest	25
B. Photographs Credits	25
C. Signature	26

I. General.

A. Weather Conditions.

The following data was recorded at the refuge headquarters weather station.

Month	Snowfall	Precipitation		Max.	Min.	Inches	Miles
	Inches	This Month	Normal	Temp.	Temp.	Evap.	Wind
Jan.	12.00	.42	1.03	58	-5		1360
Feb.	9.00	2.22	1.06	59	7		1240
March	13.00	1.05	1.61	70	16		1524
April		.42	1.15	74	16		2155
May		2.23	1.14	82	20		1337
June		1.17	1.06	92	27	6.48	934
July		.45	.53	93	40	9.81	857
Aug.	tr.	.60	.49	92	31	6.36	928
Sept.	.21	tr.	.72	61	33	6.83	1117
Oct.		.57	1.20	53	17		1044
Nov.	1.50	1.21	1.40	62	7		1340
Dec.	27.30	1.21	1.58	52	-12		2020
Totals	63.01	11.55	12.97	93	-12	29.48	15,856

Moisture was 1.46 inches below normal. Temperatures compared closely to the previous year's records. There were 1,221 less miles of wind than in 1967. The 27.30 inches of snow that fell in December was light and powdery with very little moisture content. It is interesting to note that for every inch of precipitation we recorded approximately 1,377 miles of wind.

B. Habitat Conditions.

1. Water.

The Ruby Marsh is fed by 137 springs that flow from the base of the eastern slope of the Ruby Mountains. It would be highly impractical to attempt to record flows from this many water sources, some of which are no more than seeps. Consequently we cannot make comparisons of water availability with that of previous years except by general observation of marsh conditions.

Water in the five diked units was maintained at desired levels. The remaining water was transported to the south sump which appeared to be in good condition. None of the diked units or sumps have staff gauges and exact water level elevations are not known.

Below is recorded data from the two snow courses that are cheked each year in cooperation with the Soil Conservation Service.

Snow Course Readings

Course	Elev.	Date	Snow Depth	Inches	Water Content	
				H ₂ O Content	1968	Normal
Cave Creek	7,500	2/26	16.3	4.8	12.0	13.1
		3/25	13.6	4.25	8.6	14.1
Hager Canyon	8,000	2/26	31.1	10.6	16.5	17.1
		3/25	33.5	12.3	12.9	20.4

Water content for both courses was below that recorded in 1967 and below normal. Consequently spring runoff was less than hoped for.

2. Food and Cover.

Eighty acres of rye were provided as a waterfowl food crop. Many of the grain heads were blanks, probably the result of late spring frosts. The grain that was available did not receive any observed use by geese or other waterfowl. The geese seemed to prefer grazed and hayed meadows for feeding purposes. If the grain crop continues to be unattractive to waterfowl, our farming program should be phased out.

Much of our marsh area is choked by hardstem bullrush. The open water portions of the marsh support dense growths of bladderwort, watermilfoil and coontail which effectively block light from the more desirable food plants species. Also, the density of the undesirables prohibits effective utilization of the preferred plants by waterfowl. During ~~the~~ 1969 it is planned to initiate control measures for each of the five diked units. Methods of control will consist of drawdown and drying for a two year period. During the second year bullrush will be deep-plowed to provide a more desirable interspersion of emergent vegetation and open water. It is planned to accomplish mechanical control on one unit per year commencing in 1970.

II. Wildlife.

A. Migratory Birds.

1. Waterfowl.

1968 was a good year for waterfowl production. A total of 15,034 young were produced for a 21% increase over 1967 and a 16% increase over the past 5-year period. Good weather and sufficient water levels during the nesting and brood-rearing periods were the probable reasons for the increase. The fall migrating population was below that of previous years. Total waterfowl use-days decreased 36% from 1967 and was 22% below the past 5 year average.

- a. Trumpeter Swans. The winter population of trumpeters remained constant at 24. As the breeding season progressed the population dropped to 16 swans on the refuge. Three broods were produced with a total of 9 cygnets. All cygnets survived to flight stage, but one was found dead in October.

Since the initial transplant of trumpeters from Red Rock Lakes Refuge in 1957, 85 swans have been transplanted and 52 cygnets have been raised to flight stage. With a total of 137 swans either introduced or produced on the refuge, and an average refuge wintering population of 20 to 30 swans, it appears that the swans have established both wintering and breeding areas off the refuge. A few of the refuge swans dispersed in the spring and it is not clearly known where they go. Only three off-refuge sightings of trumpeters were recorded this year. Two sightings were on the Boyd and 71 ranches which are 60 to 70 miles northwest of the refuge, and one sighting was in Newark Valley, 60 miles southwest of the refuge. We hope that more sightings in the future will enable us to learn where these birds are going.

- b. Whistling Swans. The first arrival of the fall migrants occurred on November 6. The population built up to 200 by November 15. Most left on November 24 when a snow storm and cold weather pushed them out.

Total swan use came to 10,640 days which is a 42% increase over the past 5-year average.

- c. Canada Geese. Canada Geese began arriving on the refuge in mid February, and by early March, a breeding flock of 250

geese was present. By the end of March the pairs had dispersed to their nesting sites. Total refuge production was estimated at 325 goslings raised to flight stage. This was a 16% increase in production from 1967 and was 34% above the past 5-year average.

In early September the total refuge goose flock departed and for a period of two weeks no geese were on the refuge. In late September a small migration began, peaking at 90 geese. These birds remained through most of November. It is not known if they were part of the larger flock that left two weeks earlier.

Total goose-use came to 62,000 days. This is a decrease of 30% from 1967 and is 20% below the past 5-year average.

- d. Ducks. The wintering population remained fairly constant at around 1,000 ducks. Early spring arrivals began in late February and increased until mid April when a breeding population of 4,500 was reached. 1968 was one of the best duck production years that Ruby Lake has experienced. A total of 7,700 ducklings were raised to flight stage which is an increase of 37% over 1967 and 71% above the past 5-year average. The best production was achieved by Canvasback (2500), Cinnamon Teal (1500), Mallard (1050), Redhead (900), and Gadwall (550).

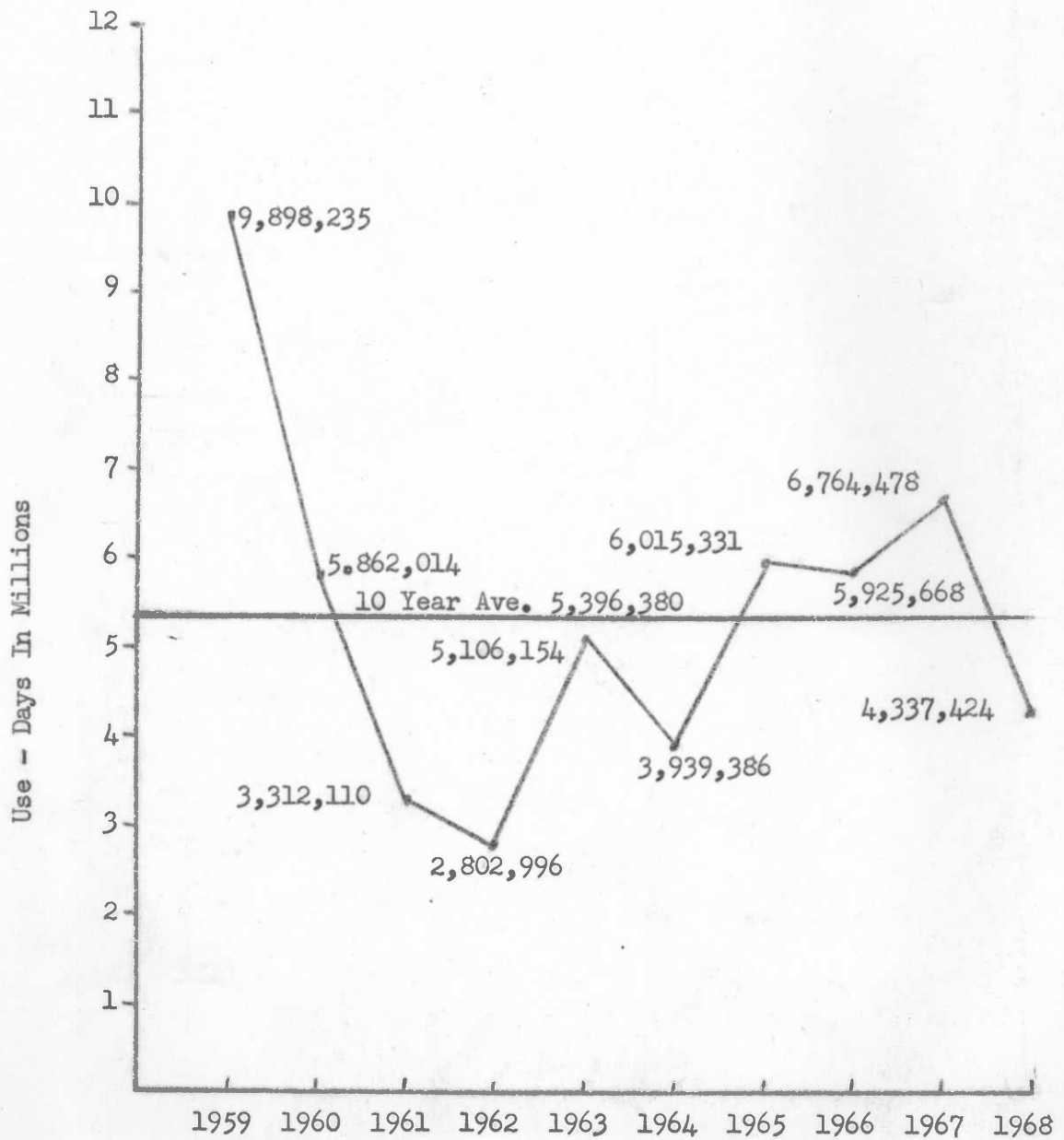
The fall migration was below expectations. The population began building up in early September, ~~the peak of 11,300~~ occurred in mid September, then sharply dropped. This does not compare favorably with the past several years which have had peaks of 14,000 to 20,000 and have retained peak numbers over several weeks. The total duck-use days came to 1,545,985 which was a decrease of 45% from 1967 and 37% below the 5-year average.

- e. American Coot. Approximately 75 Coots spent the winter at Ruby Lake. The spring migration began in late February and increased to a peak of 12,000 in mid April. The population then dropped to about 7,000. A total production of 7,000 was achieved which is an 8% increase over 1967 and a 15% decrease from the past 5-year average. Fall migration began in mid September and peaked at 29,000 in early November. The population then dropped quickly to 1,000 by late November due to cold weather and snow storms. Total coot-use days came to 3,008,725 which was a 29% decrease from 1967 and 9% below the past 5-year average.

Note: See the following graphs and tables for more waterfowl data.

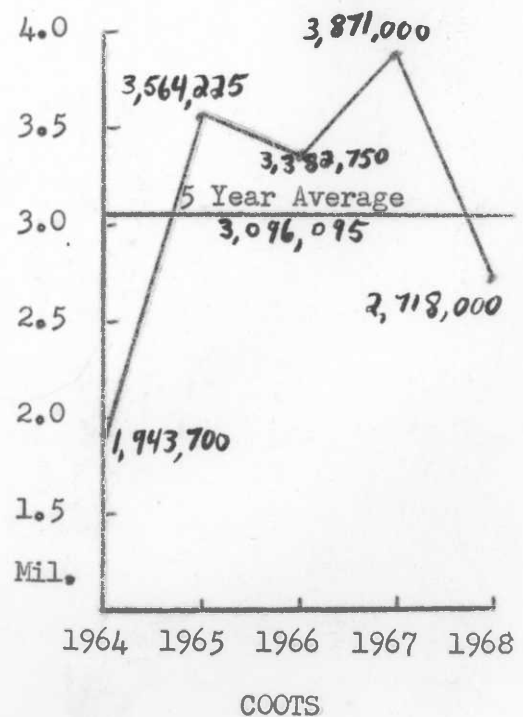
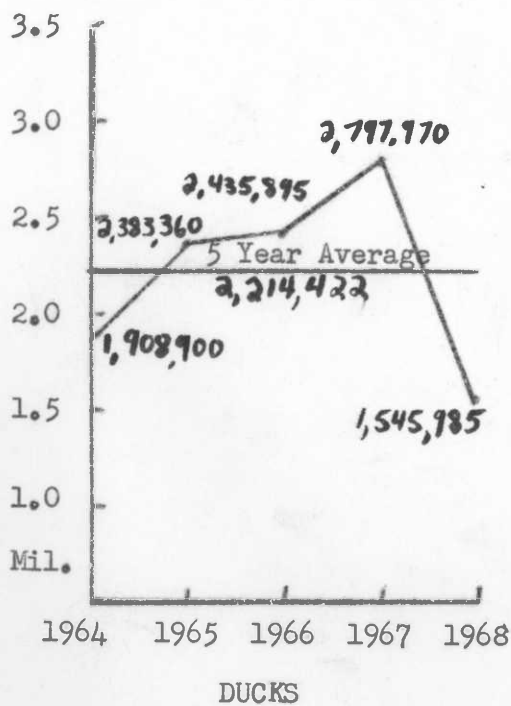
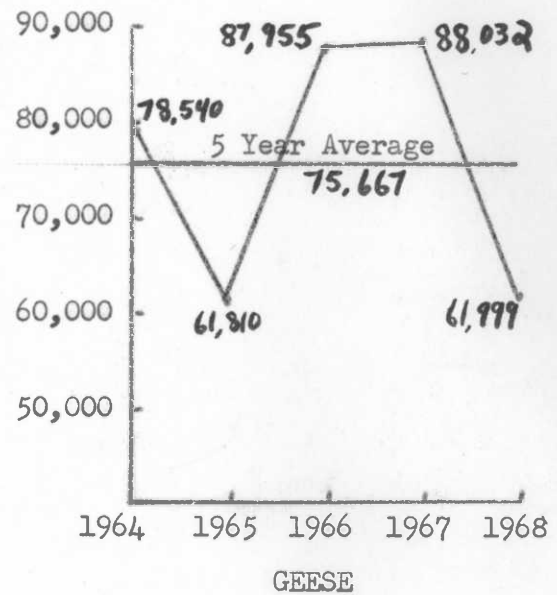
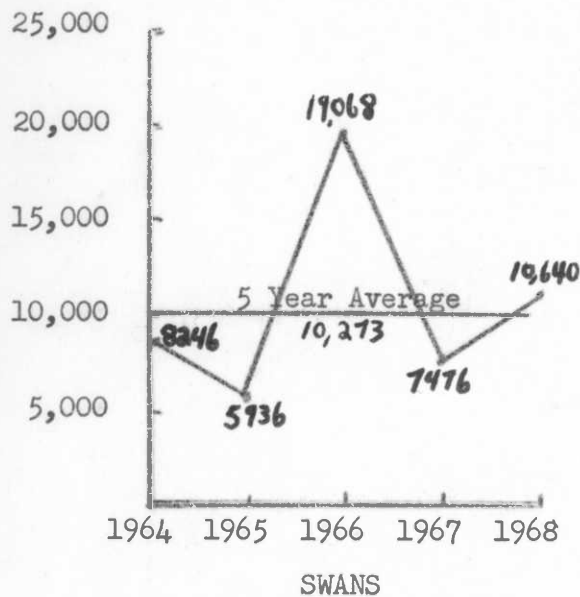
COMPARATIVE TEN YEAR TOTAL WATERFOWL USE

Jan. 1 to Dec. 31



COMPARATIVE USE-DAYS FOR SWANS, GEESE, DUCKS, AND COOTS

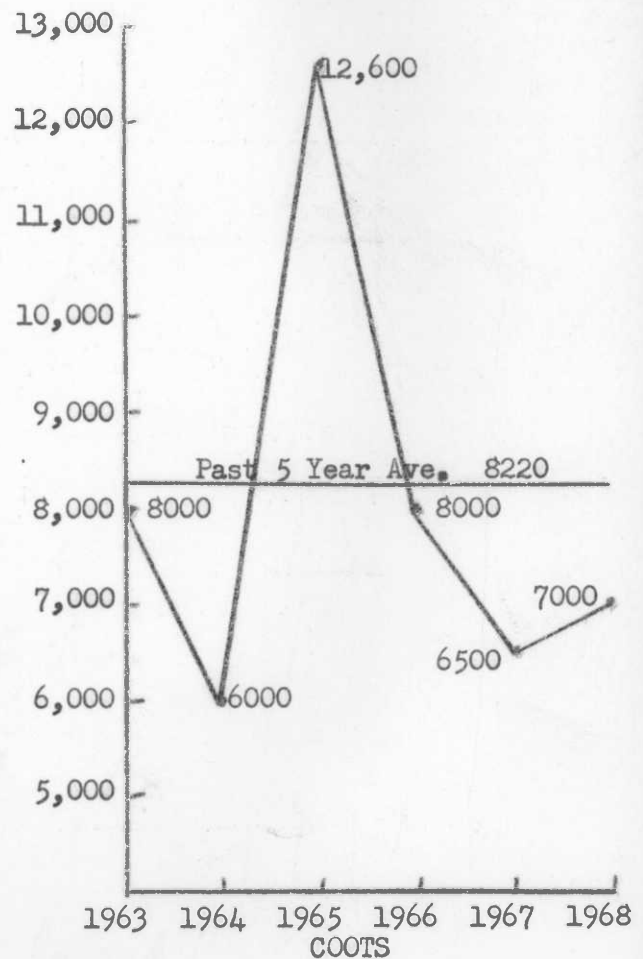
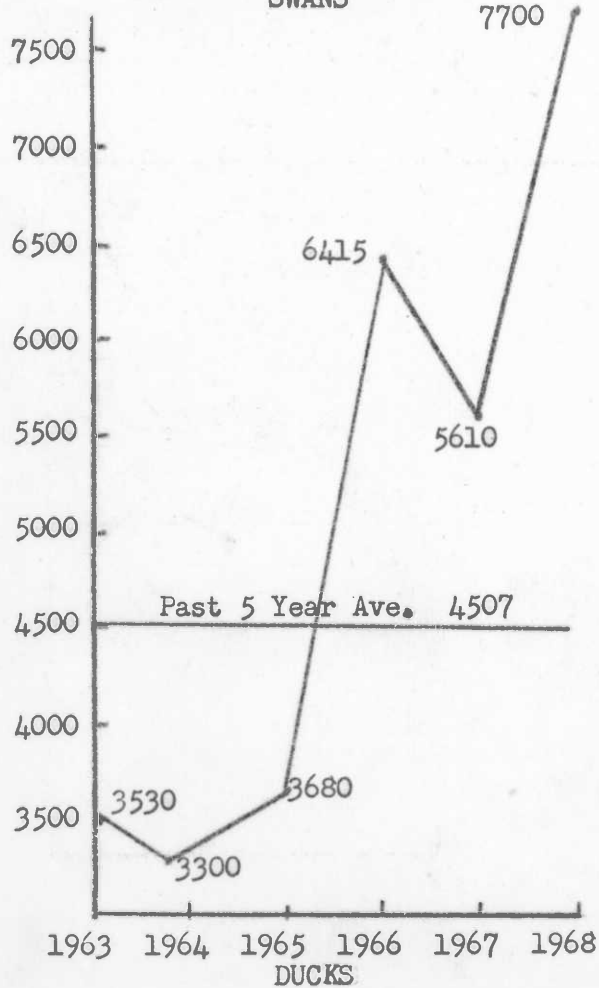
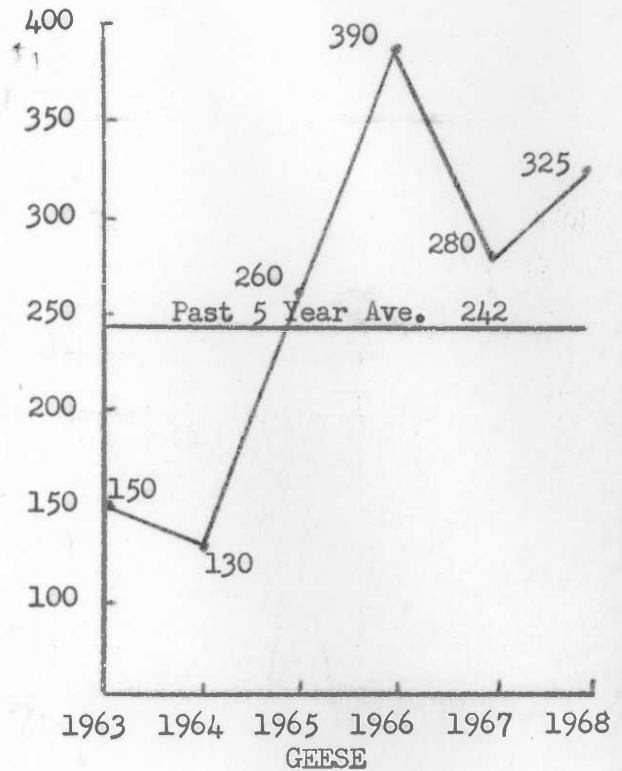
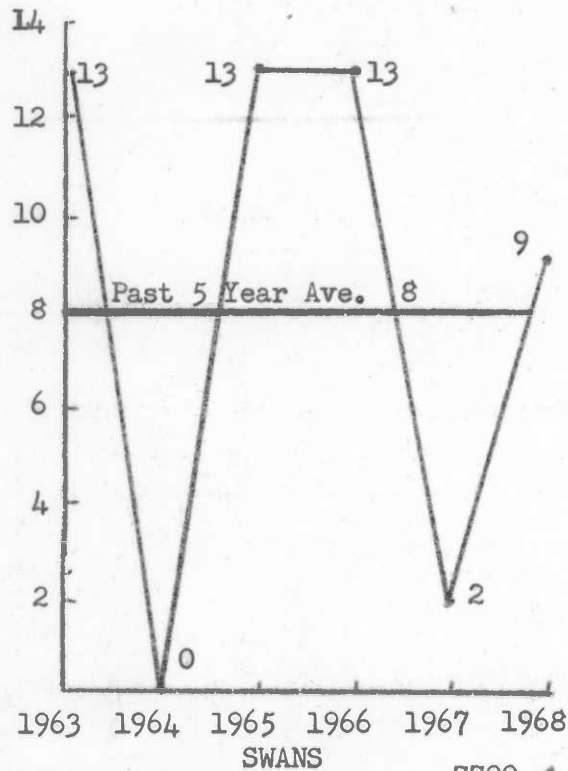
1964 to 1968



1968 Waterfowl Production Summary

<u>Species</u>	<u>Estimated Production</u>
Mallard	1050
Gadwall	550
Pintail	50
B.W. Teal	50
Cinnamon Teal	1500
Shoveler	250
Redhead	900
Ring-Necked	250
Canvasback	2500
Lesser Scaup	500
Ruddy	<u>300</u>
Total Ducks	7,700
Total Swans	9
Total Geese	325
Total Coot	<u>7,000</u>
Total Waterfowl	15,034

COMPARATIVE WATERFOWL PRODUCTION



2. Water Birds and Marsh Birds.

The Great Blue Heron and American Bittern are permanent residents of the refuge. Other birds began arriving in mid March. 1968 was a normal production year.

Some trouble occurred at the State Fish Hatchery when Great Blue Herons, American Bitterns, Snowy Egrets, and Black Crowned Night Herons were observed feeding on small fish in the rearing ponds. The state would like to control these birds, but we feel that since the hatchery is on refuge lands it is the state's responsibility to protect its ponds from the birds. A low voltage electric fence has been constructed around some ponds with limited success and other ponds have been covered for protection.

3. Shorebirds.

Most shore birds arrived in early April. Both the population numbers and production appeared normal. Shallow water areas of the refuge were the preferred sites.

4. Doves.

The first pair of Mourning Doves arrived on April 8. The population increased until it peaked at 2,000 in mid May. Production was estimated at 200 raised to flight stage. Most of the population migrated south by the end of October.

B. Upland Game Birds.

Four species of upland game birds are found on the refuge. The Sage Grouse is the only native species. California Valley Quail, Chukar Partridge, and Gray Partridge have all been introduced to the area by the Nevada Fish and Game Commission. Most of the refuge is marginal with birds ranging both on and off the refuge. Populations have become somewhat static for the past few years with Sage Grouse ranging in numbers from 200-230; California Valley Quail, 75-100; Chukar, 50-80; and Gray Partridge, 50-80. It may be that the limited habitat for these species has reached its carrying capacity. Also the fairly long winters may be a factor.

C. Big Game.

Mule deer are found in the Ruby Mountains directly west of the refuge. Little use of the refuge is made by these animals except during the spring migration when large numbers pass through refuge lands. Minor use of the refuge occurred throughout the year mainly to obtain water. A few fawns are produced each year in the willow thickets near headquarters. A few deer are nightly visitors

to the refuge lawns.

Last winter when deer were concentrated on their wintering range, a census to determine sex ratio was made. The buck:doe:fawn ratio was 100:224:212.

The Ruby Mountain area offers the best deer hunting in Nevada. Hunting pressure was fairly heavy this year along the western boundry of the refuge. The State of Nevada made the Ruby Mountains a special hunt area this year and detailed hunter information was obtained from each person that hunted in the unit. Several hundred deer were tagged last year and the Lincoln Index is being used to determine the size of the deer herd. Detailed information is also being obtained on the herd composition and migratory patterns. The unofficial reports are that 3100 deer were taken in the area by 9200 hunters. Approximately 9% of the herd was harvested which means that the herd contains about 34,000 deer.

No noticable fall migration occurred this year due to mild weather. The animals were high in the mountains and hunters had to work for their deer. After the hunting season, stormy weather and snow gradually moved most deer to their wintering area south of the refuge.

D. Fur Animals, Predators, Rodents and Other Mammals.

1. Muskrate.

The muskrat population has reached a high level - probably in excess of 20,000. This animal is useful to waterfowl on the Ruby Marsh both by the opening of dense stands of hardstem bullrush and by providing nesting sites for Trumpeter Swans and Canada Geese through his house-building activities. Although the muskrat population is beneficial to other wildlife it must be controlled for its own good. At the present time we are having difficulty controlling them and fear a large die-off. For further discussion of this problem see Section IV under "Fur Harvest."

2. Predators and Rodents.

Coyote and bobcat populations are at a moderate level. These animals are part of the controls on smaller mammals such as mice, jackrabbits, cottontails and piny rabbits. No predator complaints have been received from neighboring ranchers this year and no control measures were necessary.

In order to update the refuge mammal list, snap-trapping of mice and small rodents was started in December and will be

continued into next year. Ray Alcorn from Wildlife Services, Fallon, Nevada, is also contributing his knowledge to this venture.

3. Other Mammals.

Other mammals found on the refuge in small numbers include mink, short-tailed and long-tailed weasels, porcupine, badger and rarely mountain lions.

E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies.

The first arrival of Turkey Vultures occurred March 5. The traditional roost above Cave Creek near headquarters was used again by approximately 80 birds. These vultures stay around Ruby Lake all summer and depart in October.

The Marsh Hawk is the most common hawk on the refuge and is present both summer and winter. The Red-Tailed and Sparrow Hawk are summer residents. Rough-Legged Hawks are present but not common in winter.

Golden Eagles are observed occasionally throughout the year. There is an active nest in the southern portion of Ruby Valley. Bald Eagles are occasionally observed in winter.

Great Horned Owls are common, permanent residents on the refuge. Short-Eared Owls are occasionally seen. A Flammulated Owl was trapped this year during mist-netting operations. This is a new addition to the refuge bird list.

Magpies and Ravens are abundant on the refuge and are permanent residents. It is not known what amount of predator pressure these birds are putting on nests of waterfowl. A dummy nest study might be worthwhile.

Crows are transient visitors to the refuge in spring and fall.

F. Other Birds.

This was the last year of mist-netting at Ruby Lake. Over the past 5 years, fifty new birds have been added to the refuge bird list. Many of these were distributional records as well as firsts for Nevada. The only new bird for this year was the Flammulated Owl.

G. Fish.

The Nevada fishing season for Ruby Lake opened on January 1, and continued through October 31. The diked portions of the refuge

were closed to fishing from April 1, through June 14 to protect nesting waterfowl from disturbance.

Limits of trout were easy to obtain early in the season. The fishing emphasis switched to Largemouth Bass in the spring and continued through summer. As fall weather cooled the water, the bass stopped biting and trout became more active again.

The Nevada Fish and Game Commission conducted creel censuses on the refuge throughout the year, and the following data was obtained:

Diked Units #10, 13, 14, 20, & 21

Creel census was made on 36 days.
Anglers checked: 934.

<u>Species Caught</u>	<u>No.</u>	<u>Average Length</u>
Largemouth Bass	520	9.60 in.
Brook Trout	2	15.00 in.
Brown Trout	115	11.36 in.
Rainbow Trout	597	10.76 in.

Total fishing hours for all species: 3291.
Fish/angler: 4.06
Fish/hour: 1.15
Hours/fish: .86

South Sump

Anglers Checked: 503.

<u>Species Caught</u>	<u>No.</u>	<u>Average Length</u>
Largemouth Bass	2698	10.46 in.
Rainbow Trout	179	16.75 in.

Total fishing hours for all species: 2459
Fish/angler: 5.72
Fish/hour: 1.16
Hours/fish: .85

In the past few years both trout and bass have been fin clipped or tagged in an attempt to determine growth rates in Ruby Lake. This year in the south sump two groups of fin clipped rainbows had high recovery rates. One group averaged a length of 14 inches and the other group averaged 16 inches. The rainbow trout apparently have a very fast growth rate in the Ruby Marshes.

The return of tagged bass was much less than for trout. Nine fish

with 1964 tags and 8 with 1965 tags were recovered. The Largemouth Bass have a very slow rate of growth.

For the past several years the Nevada Fish and Game Commission has been transplanting Largemouth Bass from Ruby Lake to other waters in the state in an attempt to enlarge the bass fishery. This year 5,800 bass were transplanted.

Very little natural reproduction of trout occurs in the marsh so this fishery must be based on a planting program regulated to meet the fishery demands. All trout planted in Ruby Lake came from Gallagher State Fish Hatchery which is located on refuge lands. The following data was obtained from the hatchery and it summarizes the year's planting program:

<u>Rainbow Trout</u>				<u>Brown Trout</u>		
<u>Month</u>	<u>Lbs.</u>	<u>No.</u>	<u>No./lb.</u>	<u>lbs.</u>	<u>No.</u>	<u>No./lb.</u>
Feb.	1000	4000	4.0			
April	1000	2600	2.6	1005	5628	5.6
May	1000	3800	3.8			
June	150	540	3.6			
	850	3315	3.9			
July	1000	3000	3.0	655	3864	5.9
Aug.	100	380	3.8			
Sept.	1500	4310	2.9	995	3582	3.6
	900	2790	3.1	1345	3631	2.7
				1000	2800	2.8
Oct.				292	584	2.0
Nov.				1120	584	1.90
Dec.	759	2670	2.2			
Totals	8259	26405		6412	22217	

Grand Total: lbs. - 14,671 Nos. - 48,622

Part of the September Rainbow plant was adipose fin clipped.

H. Reptiles.

Several species of small lizards and non-poisonous snakes are found throughout the refuge during the warm months of the year. Rattlesnakes, although not abundant, are found on the refuge.

I. Disease.

No disease was noted in any of the wildlife species inhabiting the refuge.

III. Refuge Development and Maintenance.

A. Physical Development.

1. Spring Head Development.

This program has been continued from previous years. Seven springheads were cleaned with the mobile crane for a total of 95 as of December 31.

2. Interior Fencing.

Five and three-tenths miles of 4-strand suspension fence was constructed during 1968. When all of the planned interior fencing is completed a deferred rotation grazing plan will be put into effect.

Maintenance Projects.

1. Five picnic tables were refinished.
2. The interiors of quarters 17 and 46 were painted and the floors varnished.
3. The interior of the shop area in the service building was painted white.
4. Eight refuge recognition and directional signs were refinished.
5. Broken asbestos siding was replaced on quarters 46.
6. A concrete back porch was poured on quarters 46.
7. Roads and dikes were graded and mowed
8. The coal stoker furnace in quarters 17 was replaced by a forced air oil furnace.
9. A new water closet was installed in quarters 46.
10. Dragline cleaning of 6 miles of collection ditch was commenced.
11. All vehicles and equipment were serviced as needed.
12. A guard was installed around gas and diesel pumps for protection from vehicle damage.
13. A sewer, water and electrical hookup was installed for trailer houses near quarters 18.
14. New roofing material was applied to the horse barn, service building, quarters 17, refuge garage and garages at quarters 18 and 46.
15. The service building, oil house, horse barn, refuge garage and personnel quarters were given an exterior coat of paint.

B. Plantings.

1. Aquatic and Marsh Plantings.

None.

2. Trees and Shrubs.

None.

3. Upland Herbaceous Plantings.

None.

4. Cultivated Crops.

Eighty five acres of common rye was provided for green spring feed and as a fall cereal crop. As previously mentioned there was very little if any use by waterfowl. The rye fields were lightly disced in the fall for reseeding purposes.

C. Collections and Receipts.

1. Seed and Other Propagules.

Approximately 100 bushels of hengen barley were transferred from the Kootenai Refuge for feeding and banding purposes. Thirty seven hundred pounds of crested wheatgrass seed was purchased for planting on 700 acres of sagebrush land that received chemical treatment.

2. Specimens.

Twenty perching birds were collected and identified by the Bird and Mammal Laboratory in Washington, D.C. One specimen, a Flammulated Owl, is a first for Northeastern Nevada.

D. Control of Vegetation.

2-4D ester was applied to 700 acres of sagebrush by helicopter. This acreage is to be seeded to crested wheatgrass. All other vegetative control was accomplished by mechanical means.

E. Planned Burning.

None.

F. Fires.

There were no fires on the refuge. The refuge crew was called out on two occasions for assistance with fires on public or private lands.

IV. Resource Management.

A. Grazing.

There were eight grazing permittees during 1968. Permittees, A.U.M.s and revenue are listed below.

<u>Permittee</u>	<u>A.U.M.</u>	<u>Fee</u>	<u>Revenue</u>
A.C. Anderson	156.00 (cattle)	1.35	\$210.60
Duval Ranching	245.35 (horses)	2.00	490.70
	4168.04 (cattle)	1.50	6252.06
D. Fulton	12.00 (horse)	2.00	24.00
C. Gardner	10.00 (horse)	2.00	20.00
P. Mariluch	12.00 (horse)	2.00	24.00
O. Saxon	200.08 (horses)	2.00	400.16
R. Gardner	76.81 (horses)	2.00	153.62
	908.84 (cattle)	1.50	1363.26
W. Gardner	921.72 (cattle)	1.50	1382.58
TOTALS	6710.84 (cattle and horses)		\$10,320.98

Range conditions were generally good, however there were some reports that feed was not as abundant as in 1967. The cattle removed from the refuge during fall and early winter were in good condition and total grazing use was very similar to 1967.

B. Haying.

Approximately 300 acres of meadow were irrigated and mowed for hay. The hay was rake-bunched and left for early winter feeding by the Duval Ranching Company. The hay was fed out by mid December.

C. Fur Harvest.

The muskrat population for 1967 was estimated at 15 - 20,000 and the recommended trapping quota was 7,000. Three trapping permits were issued for the trapping 1967-68 season. A very low harvest of 1,786 was obtained due mainly to a lack of high quality trapper interest.

There appeared to be a large carryover from last year and the 1968 population estimate was in excess of 20,000. Since the damages caused by a high muskrat population outweigh their value as a marsh management tool, the recommended 1968-69 trapping quota was set at 9,000. This large population reduction should result

in a healthier remaining population.

Trapper selection was to be by public drawing and the division of furs was to be 25% government and 75% to the trapper. By the time of the drawing in November no applications were received nor could any trappers be interested in trapping on the refuge. In an attempt to obtain trappers, approval was received to eliminate the government's share of 25% and let the trapper keep 100% of his catch.. Still no one was interested until January 3, 1969, when two trappers were obtained.

We are hopeful that the 9,000 quota can be met in the short time remaining in the Nevada trapping season. If the quota is not reached, the population will probably again have a large carry-over and the 1969 population will be even higher.

If we have as much difficulty in obtaining trappers in future years, we fear the muskrat population will reach such a high level that there may be a big die-off and this valuable resource will be wasted.

D. Timber Removal.

None.

E. Commercial Fishing.

None.

F. Other Uses.

None.

V. Field Investigation or Applied Research.

A. Hydrologic Investigations.

The Desert Research Institute continued research on the main refuge springs. The purpose of the research is to determine the length of time required for predipitation to percolate through the Ruby Mountains and emerge at the springs. Storm clouds have been seeded with trellium which falls on the mountains along with precipitation. The spring water is chemically analyzed once each month for trellium content. The higher the content of trellium, the faster the percolation of water through the mountain. This research will be continued through 1969.

B. Waterfowl Banding.

Total waterfowl banding for 1968 from all types of banding operations resulted in the following:

<u>Species</u>	<u>No. Banded</u>
Canada Geese	49
Mallard	3
Gadwall	4
Pintail	96
G.W. Teal	36
B.W. and Cin Teal	9
Redhead	63
Canvasback	171
Lesser Scaup	4
Ring-Necked Duck	2
Ruddy Duck	3
American Coot	3
Total	<u>443</u>

1. Canada Goose Banding.

Commencing on July 1, the refuge personnel began their annual foot race with the Canada Goose. Geese are scouted from a vehicle and when a brood is sighted on high ground the chase begins. Sometimes we are able to run down the goslings before they reach water, but momma and papa usually elude us. A total of 49 goslings, 14% of this year's production, were captured in this manner. This method is the only practical way of capturing geese on this refuge. There is too much interspersion of emergent vegetation for an over the water drive of geese to be successful.

2. Waterfowl Bait Trapping.

Bait trapping efforts were sharply curtailed this year due to limited manpower and the concentrated effort on nightlighting. Bait traps were operated for only 7 days. Three traps produced the following results:

<u>Species</u>	<u>No. Banded</u>
Pintail	96
G.W. Teal	36
Redhead	2
American Coot	1
Total	<u>135</u>

3. Experimental Nightlighting.

This year an experimental nightlighting program was headed by graduate student Joe Jarvis from Humboldt State College. Records were kept to determine costs, weather conditions, number of birds caught per hour, and other factors affecting this trapping technique.

The equipment used was a 14 foot aluminum boat with 20 horsepower Mercury outboard motor. The power source was a lightweight (90 lb.) 1500 watt Dayton generator. Two 300 watt floodlights with reflectors were mounted approximately 5 feet above the bow of the boat, for locating ducks on the water. One hand-held 300 watt spotlight with a narrow beam was used to spot and "hold" the ducks for netting. A three man crew was used for more efficiency. One man operated the boat, another operated the spotlight and netted ducks with a short handled net, and the third man used a long-handled net and also emptied the nets and crated the ducks. The nets used were 20 inch diameter hoop nets, with 3 and 6 foot handles.

In general, greater success was achieved on calm moonless or overcast nights. On very windy nights the birds were wild and hard to catch. On bright moonlit nights the birds did not hold well in the spotlight and often flushed before the boat got near. It was found that divers were generally easier to catch than puddle ducks, and we feel that this technique will not replace bait trapping for puddle ducks. Of the divers, Canvasback were easier to catch than Redheads, Lesser Scaup and Ring-Necked Ducks. Ruddy ducks were very hard to capture because they reacted to the light by diving. More success was achieved in areas of good interspersed emergent vegetation than in large open water areas. We feel that this method offers good potential for the capture and banding of divers, especially locals and immatures.

Some of the factors that reduce efficiency and success of this technique are as follows: (1) The 20 horsepower motor was too large for this operation because it was difficult to operate at low speeds; a small outboard would be better. (2) Nets held in the light made reflections that caused the birds to flush. (3) The bow wave sometimes caused the birds to flush, as did unnecessary talking by the crew and any unshielded backlighting, in the boat.

The following banding results were obtained from the nightlighting operations:

<u>Species</u>	<u>No. Banded</u>
Mallard	3
Gadwall	4
Cin and B.W. Teal	9
Canvasback	171
Redhead	61
Lesser Scaup	4
Ring-Necked Duck	2
Ruddy Duck	3
American Coot	2
Total	<u>259</u>

A total of 300 ducks were captured. Two hundred and fifty-nine of these were banded and 41 were retraps. A total of 42 hours were spent on the marsh including travel time to and from the actual capture sight. Only 25 hours were actually spent capturing and banding ducks. Of the total attempts to take ducks, an average of 54% were successful. The number of birds caught per hour of actual capture time varied from 4.5 to 20 birds with an average of 12 per hour. If travel time is included, the average drops to 6 birds per hour.

The expenses for equipment and supplies needed to start night-lighting operations, assuming that a boat and motor are already available, are as follows:

Portable generator	\$214.50
Spotlight narrow beam 300 watt	22.50
2-300 watt floodlights	12.50
2-20 inch hoop type dip nets	8.00
Scrap iron for light brackets	5.00
Labor for Maintenceman II (6 hours)	21.60
Electrician's labor and supplies	<u>40.24</u>
Total	<u>\$324.26</u>

Total cost for one year's operation, including labor, materials and equipment would be as follows:

Dayton portable 1500 watt generator	\$214.50
14 foot aluminum boat	250.00
20 horsepower Mercury outboard	439.00
Spotlight narrow beam 300 watt	22.42
Scrap iron for light brackets	5.00
Labor and supplies for electrician	40.24
Labor for Maintenance man II	21.60
Total	<u>\$992.76</u>

Prorated costs based on a use period of
10 years for the above items.

$\$992.76 \times 10\% =$ (yearly cost) 99.28

Travel

Automobiles - 80 miles @ 8¢/mile	6.40
Boat - 50 gallons fuel @ 40¢/gal	20.00

Materials

2-300 watt flood lamps	12.50
2-20 in. hoop type dip nets	8.00

Miscellaneous

Labor for actual nightlighting
and banding
3 men @ \$9.50/hour
38 hours (4 hours donated)

360.00

TOTAL YEARLY EXPENSES

\$511.18

Number of birds captured - 300	\$1.70/bird
Number of birds banded - 259	\$1.97/bird

We feel that the cost per bird banded will drop considerably after this technique becomes operational rather than experimental. There are skills that can be learned with practice, and some of the factors that reduce efficiency and success can be overcome to decrease the cost per bird banded. We feel that nightlighting is very promising for the capture and banding of divers and our 1969 banding efforts will be directed to this operation.

C. Mourning Dove Banding.

Mourning dove banding commenced in late April and was continued until early July. A total of 162 doves were taken in 69 trap days. In addition, 8 California Valley quail were trapped and banded.

D. Passerine and Other Bird Banding.

Most of the following birds were mist-netted in the brush and trees along Cave Creek. The blackbirds and cowbirds were captured in a grain-baited decoy trap. A total of 40 species were banded and are listed in A.O.U. order.

<u>Species</u>	<u>No. Banded</u>
Spotted Sandpiper	1
Poor-Will	4
Olive sided Flycatcher	1
Western Wood Peewee	16
Western Flycatcher	6
Traill's Flycatcher	1
Hammond's Flycatcher	16
Brown-Headed Cowbird	44
Yellow headed Blackbird	681
Ballock's Oriole	10
Brewer's Blackbird	1
Cassin's Finch	1
House Finch	1
American Goldfinch	1
Lesser Goldfinch	1
Pine Siskin	4
Lark Sparrow	1
White-Crowned Sparrow	2
Song Sparrow	2
Rufous- Sided Towhee	2
Green-Tailed Towhee	1
Black-Headed Grosbeak	5
Indigo Bunting	2
Lazuli Bunting	11
Western Tanager	24
Tree Swallow	1
Cedar Waxwing	3
Warbling Vireo	6
Audubon's Warbler	6
Orange-Crowned Warbler	2
Yellow Warbler	31
MacGillivray's Warbler	9
Yellow Throat	7
Yellow Breasted Chat	25
Wilson' Warbler	111
House Sparrow	2
Catbird	5
Swainson's Thrush	5
Hermit Thrush	1
Robin	14
<u>TOTAL 40 Species</u>	<u>966 birds.</u>

E. Canada Goose Nesting Platforms.

Since 1965, 59 "Dill Type" goose nesting platforms have been constructed and placed in various locations throughout the marsh. The platforms have 4 heights ranging from 4 to 7 feet. No new platforms were placed in 1968. No goose use has been noted in any of the platforms since they were first placed. No new platforms will be put out in the near future, but the existing ones will be checked for use each year.

F. Marsh Management Study.

In 1967 a two year marsh management study was initiated by Joe Jarvis, graduate student at Humboldt State College. Joe is completing a management plan for the refuge as well as using this study for his master's thesis. The purpose of the study was to formulate a management plan that would open dense stands of hardstem bullrush and improve the nesting habitat for diving ducks, especially the Canvasback. Investigations were made into nesting habitat requirements, proper water depths, desirable and undesirable plant species, amount of interspersions of bullrush that is needed, and methods of control of hardstem bullrush and bladderwort.

Joe completed his field work in the summer of 1968 and expects to have the management plan and thesis finalized in early 1969. As soon as the plan is received we will put it into operation to improve the nesting habitat of the marsh.

VI. Public Relations.

A. Recreational Use.

Total annual use of 33,580 visits is an increase of 1,830 over 1967. As in the past, fishing accounts for most of the visitor use. Below is a tabulation of visitor use as it was submitted on the Monthly Public Use Report.

Hunting		Camping	3,200
Waterfowl	170	Picnicking	565
Fishing		Swimming	300
Warm water	11,350	Boating	2,500
Cold Water	11,800	Water Skiing	2,500
Wild. Photography	70	Misc. Wildlife	60
Wild. Observation	500	Misc. Non-Wildlife	375
Trails & Walks	190	TOTAL	33,580
		Actual Visits	21,355

The above figures are only estimates of use. There are several entrances that may be used by the visitor and as many of the people are constantly moving from one area to another traffic counters would not give a true figure.

During 1968 Ruby Lake Refuge was again a user fee area. While use permits were required, 320 of the seven dollar permits and 144 daily permits were sold. A total revenue of \$2,384 was collected.

B. Refuge Visitors.

A partial list of official visitors follows:

<u>Date</u>	<u>Name</u>	<u>Affiliation</u>	<u>Purpose</u>
1/24	M. Mifflin	Des. Res. Inst.	Spring Samples
	T. Wheeler	" " "	" "
2/6	P. Phillips	B.O.R.	Recreation
2/6	L. Hoskins	Nevada F.&G.	Recreation
2/27	T. Moore	Elko Co. Civ. Defense	Fallout Shelters
2/27	F. Clark	Civil Defense & Disaster	" "
2/27	J. Bell	U.S. Navy	" "
5/14	W. Strojles	Des. Res. Inst.	Spring Samples
summer	F. Pallo	B.L.M.	Recreation
"	R. Ertel	"	"
"	C. Anderson	"	"
"	K. Giles	"	"
"	A. Tripp	"	"
"	M. Buzan	"	"

9/4	R. Shields	Refuge Division	Orientation
9/6	R. Poling	Nevada F. & G.	Enforcement
9/9	J. Alcorn	Wildlife Services	Mammal Collect.
9/9	R. Quiroz	" "	" "
9/10	R. Brigham	B.L.M.	Recreation
10/14	A. Weinrich	G.M.A.	Enforcement
10/21	J. Shaw	Realty Div.	Qtrs. Survey
10/23	R. Glahn	Refuge Div.	Census
10/28	H. Opfar	U.S.F.S.	Visit
10/30	H. Hardosty	Refuge Division	Equip. Del.
10/31	R. Barber	B.L.M.	Recreation
10/31	R. Brigham	"	"
11/12	J. Johnson	S.C.S.	Range Survey

C. Refuge Participation.

1/9 Creasy and Morrow - showed film at Ruby Valley School.

2/13 Creasy and Morrow - showed film at Ruby Valley School.

3/9 Lewis - gave tour and showed film to 43 sportsmen.

4/12 Lewis - showed film and gave talk to Elko Civic Club.

4/17 Creasy - showed film at Ruby Valley School.

8/6 Lewis - met with Nevada Fish and Game personnel concerning fishing regulations and with county commissioners concerning surfacing of Ruby Valley county road.

9/20 Howard and Barber - attend B.L.M. fall wildlife meeting in Elko.

10/23 Howard and Napier - gave talk concerning proposed refuge management plans to 90 sportsmen in Ely, Nevada.

11/4 Howard with R. Shields - met with B.L.M. personnel in Reno to discuss cleanup responsibilities at B.L.M. campground in Ruby Valley.

12/10 Howard and Napier - attend Elko County Sportsman's Association meeting in Elko to discuss proposed refuge management plans.

Assistant manager James Creasy participated in the Basic Refuge Management Course in Arden Hills, Minnesota.

Manager Lewis attended monthly meetings of Elko County Game Management Board when possible.

Managers Howard and Napier attended monthly meetings of Elko County Game Management Board when possible.

D. Hunting.

The waterfowl hunting season opened on October 19. An estimated 75 hunters were present on the first day and about 15 on the second. During these first two days 56 bag checks revealed 101 waterfowl taken for an average of 1.80 birds/hunter. Redheads, Ruddies and Canvasback were the most frequently taken, in that order.

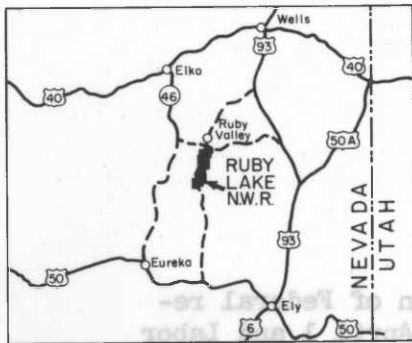
After opening weekend the refuge probably averaged not more than 5 hunters per week.

There is no other type of hunting allowed on Ruby Lake Refuge.

E. Violations.

Enforcement duties are performed by both refuge and state fish and game personnel. The majority of those apprehended were for infractions of fishing or boating regulations as this type of recreation constitutes the bulk of our recreational use. Known violations are listed below: (an "R" behind the officer's name indicates refuge personnel: an "S" indicates state fish and game personnel.)

<u>Name</u>	<u>Violation</u>	<u>Disposition</u>	<u>Officer</u>
F. Ballman	Improper boat no.	warning	Poling -S
J. Bunten	No life pres.	warning	Poling - S
T. Combs	" " "	"	Poling - S
B. Culver	No fish. lic.	Warning (juvenile)	Poling - S
L. Ecklay	No fish lic.	\$50.00	Poling - S Savage - S
C. Fields	Speeding	Warning	Poling - S Coffin - S
D. Jones	Overlimit fish	\$25.00	Poling - S
A. Kerby	No life pres., operate boat in closed area.	Warning	Poling - S
S. Kesgard	No fish lic.	Warning	Hoskins - S Creasy - R
E. Limke	Littering	\$50.00	Poling - S Creasy - R
J. Martin	Improp. boat registration, no boat number.	\$20.00	Poling - S
H. Penrod	No life preserv., invalid boat regis.	\$40.00	Poling - S Ashman - S
A. Rickman	No life preserv.	\$20.00	Poling - S

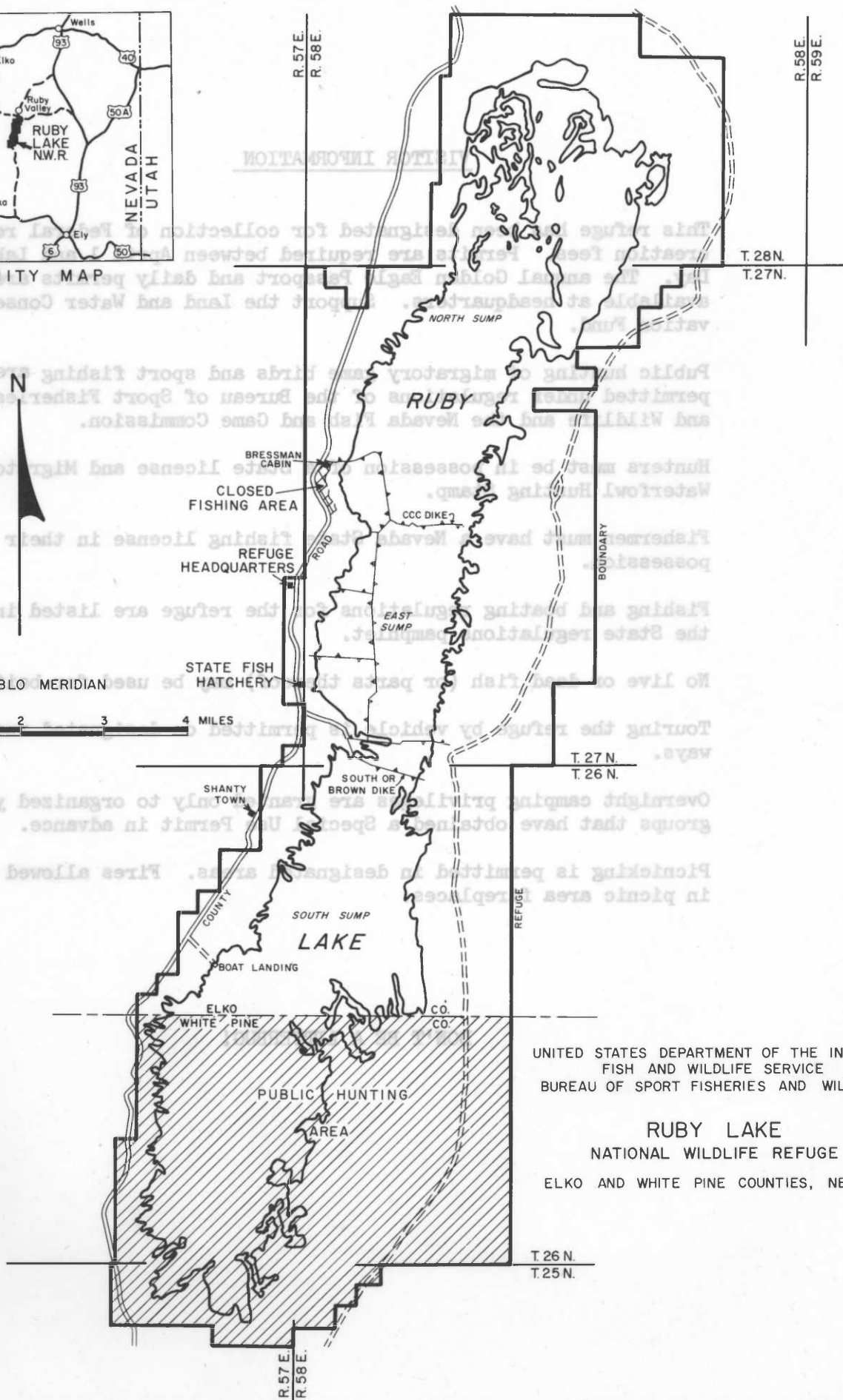


VICINITY MAP



MT. DIABLO MERIDIAN

Scale 0 1/2 1 2 3 4 MILES



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

RUBY LAKE
NATIONAL WILDLIFE REFUGE
ELKO AND WHITE PINE COUNTIES, NEVADA



VISITOR INFORMATION

This refuge has been designated for collection of Federal recreation fees. Permits are required between April 1 and Labor Day. The annual Golden Eagle Passport and daily permits are available at headquarters. Support the Land and Water Conservation Fund.

Public hunting of migratory game birds and sport fishing are permitted under regulations of the Bureau of Sport Fisheries and Wildlife and the Nevada Fish and Game Commission.

Hunters must be in possession of a State license and Migratory Waterfowl Hunting Stamp.

Fishermen must have a Nevada State fishing license in their possession.

Fishing and boating regulations for the refuge are listed in the State regulations pamphlet.

No live or dead fish (or parts thereof) may be used for bait.

Touring the refuge by vehicle is permitted on designated roadways.

Overnight camping privileges are granted only to organized youth groups that have obtained a Special Use Permit in advance.

Picnicking is permitted in designated areas. Fires allowed only in picnic area fireplaces.

DON'T BE A LITTERBUG!

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF SPORT FISHERIES AND WILDLIFE
RUBY LAKE
NATIONAL WILDLIFE REFUGE
ELKO AND WHITE PINE COUNTIES, NEVADA

B. Riggs	No life preserv.	\$20.00	Poling - S
R. Slate	Use motor in prohib. area, no life preserv.	\$30.00	Hoskins - S Poling - S
J. Speir	Overlimit fish	\$25.00	Poling - S
R. Speir	Overlimit fish	\$25.00	Poling - S
M. West	Use motor in prohib area.	\$10.00	Hoskins - S
D. Warren	No life Preserv.	\$20.00	Poling - S Skov - S
J. Baldwin	No life preserv.	\$10.00	Poling - S
L. Coy	No life preserv.	\$20.00	Poling - S
C. Kenley	No fish lic.	\$25.00	Howard - R
P. Nichols	No fish lic.	\$25.00	Coffin - S
D. Parraguirre	No life preserv.	\$10.00	Poling - S
D. Allen	Take prot. species	\$25.00	Howard - R
D. Garrard	Take prot. species	\$25.00	Howard - R
C. McCarthy	No fish lic.	\$60.00	Howard - R
J. Vowels	Inadequate plug	dismissed	Napier - R
T. English	No fish lic.	\$60.00	Buck - S
R. Hordison	Unlaw, poss upland game and waterfowl	dismissed	Buck - S Molini - S
	<u>TOTAL</u>	<u>\$595.00</u>	

F. SAFETY.

1. SAFETY Meetings.

SAFETY meetings are held monthly and attendance by all personnel is mandatory. All SAFETY material is read and/or discussed. On-the-job SAFETY is stressed continually.

2. Accident Record.

This station was blessed with an accident free year.

3. Measures Taken To Prevent Accidents.

- a. All staff members with government driver's licenses have participated in a defensive driving course.
- b. All worn seat belts have been replaced.
- c. Fire escape ladders have been installed on both two story quarters.
- d. A new fire alarm system was installed.
- e. Fire drills and building inspections are conducted quarterly.

4. Accident Free Days.

As of December 31, 1968, we accrued 5,432 days without a lost time accident.

5. Acquisition of Protective Equipment.

- a. As previously mentioned, SAFETY belts, two fire escape ladders and a fire horn were purchased and installed.
- b. A mercury vapor light was installed at the headquarters area for safer foot passage during the hours of darkness.

6. Future SAFETY Plans.

All SAFETY programs will continue and SAFETY on the job and at home will be placed at the head of all refuge programs.

VII. Other Items.

A. Items of Interest.

Mr. Joseph Jarvis, a graduate student at Humboldt State College, completed field work on a marsh management study. We expect his final report to be of great assistance in planning for future management of the Ruby Marsh.

A nightlighting program was tried for the first time and shows real promise.

Under the revenue sharing act, payment of \$4,485.80 was made to Elko County, and \$2,189.12 to White Pine County for a total of \$6,674.92.

B.L.M. issued a contract for construction of a campground adjacent to the west refuge boundry. This camping area consists of 35 units and is near completion.

The U.S. Forest Service released information of a 2,000-3,000 acre stand of Bristlecone Pine on Pearl Peak in the Ruby Mountains which is located about 5,000 feet straight up from the refuge headquarters. The Bristlecone is reportedly the oldest living thing and the discovery has created much interest.

B. Credits.

Lynn Howard - I A, B; III; IV A, B; VI; VII.

Lowell Napier - II; IV C, D, E, F; V.

Bonnie Napier - Typing.

Photography - Howard and Lewis.

SIGNATURE PAGE

Submitted by:

Lyman P. Howard
(Signature)

Refuge Manager
(Title)

Date: Wed., January 29, 1969

Approved, Regional Office:

Date: 2-17-69

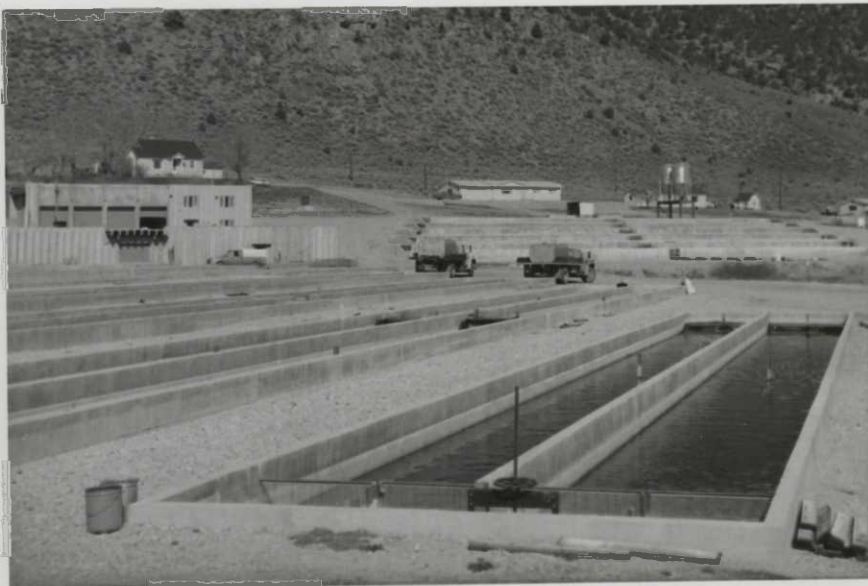
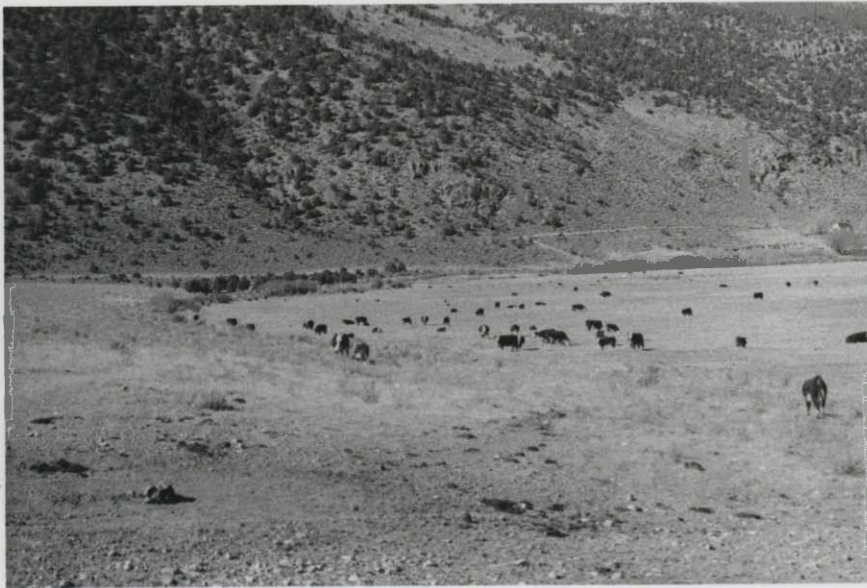
Edward J. Smith
(Signature)

Area Supervisor Refuges
(Title)

One of three public information
display booths being installed.

Helicopter being loaded during
sagebrush spraying operations.



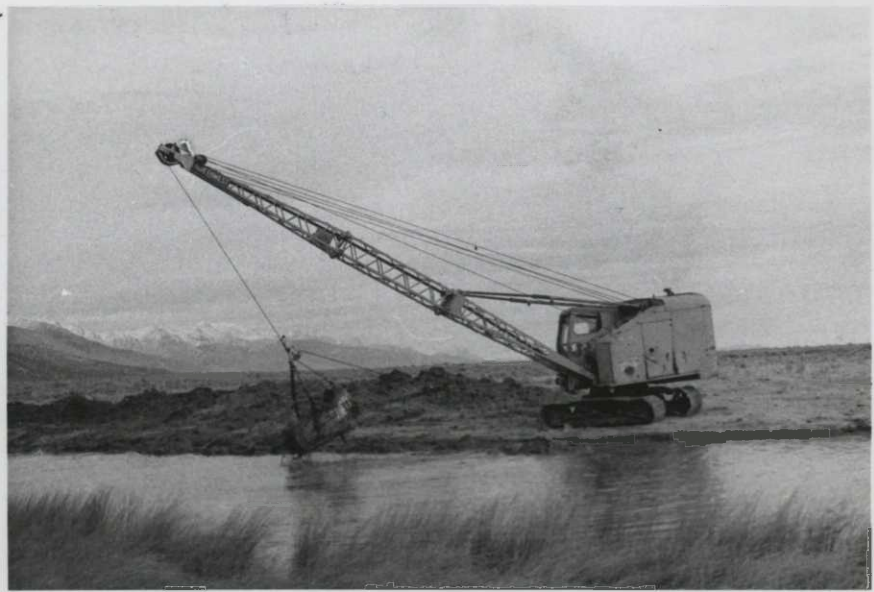


We started cleaning the miles
Cattle grazing on hayed
meadowland. mobile crane
keeping it on the line.

Grays Lake Refuges previously formed
us their drainage, and the job
Partial view of enlarged
Gallagher State Fish Hatchery
located on refuge lands.

We started cleaning six miles
of collection ditch with our
mobile crane, but had trouble
keeping it on the dike.

Grays Lake Refuge graciously loaned
us their dragline, and the job
became a little less complicated
and a whole lot safer.





State hatchery crew seining plantable
size trout from rearing ponds
located on refuge lands.

This one haul netted
625 lbs. of trout.

State hatchery crew setting planable
Greater Sandhill Cranes
on Ruby Marsh. no record

Trumeter swans and cygnets,
This one had netted





Probably our tiniest feathered
refuge visitor, a Calliope Hummingbird,
photographed near headquarters.

A happy angler with
a good string of
Largemouth Bass.

Biological technician Joe Jarvis
pushing trapped ducks into
holding pen.

A happy angler with
a good catch.
Ready for banding.
Larremouth Bass.





Boat equipped for
nightlighting operations, single
spot may be removed
from bracket and hand
held.

3 -1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)REFUGE Ruby LakeMONTHS OF January TO April, 1968

(1) Species	(2) Weeks of reporting period							(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	3/10-16	3/17-23	3/24-30	3/31-4/6	4/7-13	4/14-20	4/21-27		
Swans:									
Whistling									
Trumpeter	24	18	18	18	18	18	16	2,590	
Geese:									
Canada	250	250	250	250	250	250	250	16,079	
Cackling									
Brant									
White-fronted									
Snow									
Blue									
Other									
Ducks:									
Mallard	500	500	500	500	500	500	600	44,520	
Black									
Gadwall	200	200	300	300	300	300	600	21,140	
Baldpate	100	100	100	100	100	100	100	8,820	
Pintail	200	300	300	300	300	200	200	21,560	
Green-winged teal	300	400	400	400	300	200	300	23,940	
Blue-winged teal	10	10	10	10	10	10	50	910	
Cinnamon teal	750	750	750	750	750	750	800	43,680	
Shoveler	50	100	100	100	100	100	200	7,000	
Wood									
Redhead	100	150	200	200	250	300	500	12,775	
Ring-necked	10	10	10	50	75	75	100	4,620	
Canvasback	150	200	400	450	450	450	500	19,775	
Scaup, Lesser	200	200	200	200	200	200	400	19,800	
Goldeneye		25	25	20				7,070	
Bufflehead	25	50	50	75	50	25	100	6,685	
Ruddy	75	75	75	75	75	75	100	7,350	
Other H. Merganser								280	
C. Merganser				50	50	10	10	1,400	
TOTAL DUCKS:	2,670	3,070	3,420	3,580	3,510	3,295	4,560	251,405	
Coot:	2,500	5,000	7,500	7,500	10,000	12,000	7,000	384,300	
				(over)					

	(5)	(6)	(7)	
	Total Days Use	Peak Number	Total Production	SUMMARY
Swans	2,590	24		Principal feeding areas <u>Open marsh and collection ditch.</u>
Geese	16,079	250		
Ducks	251,405	4,560		Principal nesting areas <u>Grassy islands and marsh borders.</u>
Coots	384,300	12,000		
				Reported by <u>Donald E. Lewis, Refuge Manager</u>

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751

Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS

(other than waterfowl)

Refuge Ruby LakeMonths of January to April / 68
195

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Baldpate	5	3/15	50	4/25	Still	Present				150
Pied-billed Grebe	Previous	Period	20	4/20	"	"				100
Great Blue Heron	Permanent	Resident	60	4/20	"	"				150
Snowy Egret	2	4/13	100	4/25	"	"				150
Black-crowned Night Heron	3	4/10	120	4/25	"	"				200
American Bittern	Permanent	Resident	120	4/25	"	"				150
White-faced Ibis	7	4/10	75	4/20	"	"				150
Sandhill Crane	2	2/29	40	4/25	"	"				80

(over)

(1)	(2)		(3)		(4)		(5)		(6)
III. <u>Doves and Pigeons:</u>									
Mourning dove	2	4/08	100	4/30	Still	Present			300
White-winged dove									
IV. <u>Predaceous Birds:</u>									
Golden eagle	Permanent Resident		4	4/30	"	"			6
Duck hawk									
Horned owl	Permanent Resident		25	4/25	"	"			40
Magpie	"	"	200	4/20	"	"			600
Raven	"	"	30	3/10	"	"			100
Crow	10	3/10	50	4/05	"	"			200
Turkey Vulture	1	3/05	80	4/30	"	"			150
Cooper's Hawk	Previous Period		6	3/15	"	"			20
Red-tailed Hawk	"	"	8	2/20	"	"			20
Rough-legged Hawk	"	"	12	2/20	"	"			30
Bald Eagle	"	"	2	1/05	1	4/22			2
Marsh Hawk	Permanent Resident		40	3/15	Still	Present			75
Osprey	1	4/22	1	4/22	1	4/22			1
Prairie Falcon	2	1/10	8	3/15	Still	Present	by Donald E. Lewis,		12

Refuge Manager

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Ruby Lake

Months of January to April, 19 68

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specificioally requested. List introductions here.
Sage Grouse	Upland sage, rabbitbrush and meadows 20,000 acres	100	—	—	1::1	0	0	0	200	Residents on and off use
California Valley Quail	Foothill drainages 400 acres	4	—	—	1::1	0	0	0	100	Resident population resulting from transplant
Chukar Partridge	Mountain foothills 8,000 acres	200	—	—	1::1	0	0	0	40	Resident population resulting from transplant
Gray Partridge	Mountain foothills 8,000 acres	160	—	—	1::1	0	0	0	50	Resident population resulting from transplant

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- | | |
|---------------------|--|
| (1) SPECIES: | Use correct common name. |
| (2) DENSITY: | Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. |
| (3) YOUNG PRODUCED: | Estimated number of young produced, based upon observations and actual counts in representative breeding habitat. |
| (4) SEX RATIO: | This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available. |
| (5) REMOVALS: | Indicate total number in each category removed during the report period. |
| (6) TOTAL: | Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons. |
| (7) REMARKS: | Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested. |

* Only columns applicable to the period covered should be used.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Ruby Lake

Year ending April 30, 1968

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
Mink	Marsh edges	2,000												10
Badger	Upland	27,000												20
Coyote	Upland & marsh	37,000			8									25
Bobcat	Upland	27,000												50
Muskrat	Marsh	12,000		1786				T-7015* T-7017* T-7018*	1357	429	429	0	0	18,000

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS: *All three Trapper Permits are combined in total furs.

Reported by Donald E. Lewis, Refuge Manager

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

WATERFOWL

MONTHS OF May TO August, 1960

[illegible]

(Rev. March 1953)

REFUGE Ruby Lake

MONTHS OF May TO August, 1944

(1) Species	(2) Weeks of reporting period								(3) Estimated	(4) Production	
	7/7-7/13 11	7/14-7/20 12	7/21- 7/27 13	7/28-8/3 14	8/4-8/10 15	8/11-8/17 16	8/18- 8/24 17	8/25-8/31 18	waterfowl days use	Broods: seen	Estimated total
Swans:											
Whistling											
Trumpeter	16	16	20	20	20	20	20	20	216	5	9
Geese:											
Canada											
Cackling	590	590	400	400	400	400	400	400	39,200	20	325
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	690	690	600	600	600	600	600	600	79,100	11	1090
Black											
Gadwall	700	700	700	700	700	700	700	700	51,200	8	590
Baldpate	100	100	200	200	200	200	200	200	10,800		
Pintail	200	200	900	900	900	900	700	900	42,000	2	90
Green-winged teal	100	100	50	50	50	50	50	100	13,600		
Blue-winged teal	50	50	50	50	50	50	50	50	6,300		50
Cinnamon teal	1200	1200	1900	1900	1900	1900	1900	1900	192,600	14	1900
Shoveler	100	100	200	200	200	200	200	200	18,200	2	250
Wood			10	10	10	10	10	10	400		
Redhead	600	600	600	600	600	600	600	600	70,000	15	900
Ring-necked	200	200	200	200	200	200	200	200	23,200		50
Canvasback	700	700	900	900	900	900	900	900	67,600	27	2900
Scaup	900	900	900	900	900	900	900	900	94,000	20	500
Goldeneye											
Bufflehead	50	50							4,900		
Ruddy	200	200	200	200	200	200	200	200	23,800	15	900
Other C. Narganser									140		
Total Ducks	5990	5990	6210	6210	6210	6210	6610	6660	678,510	112	7700
Coot:	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	1,232,000	400	7000
				(over)							

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	2,184	20	9
Geese	39,200	400	325
Ducks	678,510	6,860	7,700
Coots	1,232,000	12,000	7,900

SUMMARY

Principal feeding areas Shallow ponds, diked units and open marsh.

Principal nesting areas Grossy ditch and dike banks, meadows, hardstem and islands.

Reported by Lynn C. Howard, Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)Refuge Ruby LakeMonths of May to August 1968

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Eared Grebe	Previous	Period	85	8/25	Still	Present	0	0	0	130
Pied-billed Grebe	"	"	120	8/15	"	"	1	50	125	250
Great Blue Heron	Permanent	Resident	60	6/15	"	"	1	20	50	125
American Bittern	"	"	70	6/13	"	"	0	0	0	200
Snowy Egret	Previous	Period	90	6/20	"	"	1	15	35	160
Black-crowned Night Heron	"	"	50	6/18	"	"	1	15	35	120
White-faced Ibis	"	"	200	7/10	"	"	0	20	35	240
Sardhill Crane	"	"	50	6/18	"	"	0	20	20	110
									25	
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	Previous	Period	170	7/16	Still	Present	0	65	130	380
Long-billed Curlew	"	"	120	7/14	"	"	0	50	75	210
Spotted Sandpiper	"	"	250	8/11	"	"	0	30	65	400
Western Willet	"	"	100	8/11	"	"	0	40	90	200
Lesser Yellowlegs	"	"	50	8/25	"	"	0	0	0	75
American Avocet	"	"	50	7/24	"	"	0	10	30	100
California Gull	"	"	20	8/18	"	"	0	0	0	30
Forester's Tern	"	"	10	7/20	"	"	0	0	0	25
Black Tern	3	5/15	50	7/11	"	"	0	0	0	75

(over)

(1)	(2)		(3)	(4)		(5)			(6)	
III. <u>Doves and Pigeons:</u>										
Mourning dove	Previous	Period	2000	5/15	Still	Present	0	200	450	5000
White-winged dove										
IV. <u>Predaceous Birds:</u>										
Golden eagle	Permanent	Resident	3	5/7	Still	Present	0	0	0	10
Duck hawk										
Horned owl	Permanent	Resident	20	6/12	"	"	0	0	0	30
Magpie	"	"	300	7/18	"	"	0	225	225	500
Raven	"	"	60	7/25	"	"	0	40	40	120
Crow	Previous	Period	80	8/12	"	"	0	60	60	160
Turkey Vulture	"	"	80	8/25	"	"	0	0	0	100
Cooper's Hawk	"	"	5	5/15	"	"	0	0	0	10
Red-tailed Hawk	"	"	8	7/20	"	"	0	0	0	12
Rough-legged Hawk	"	"	6	8/12	"	"	0	0	0	11
Marsh Hawk	Permanent	Resident	30	7/15	"	"	0	0	0	50
Prairie Falcon	Previous	Period	8	8/25	"	"	0	0	0	15
Sparrow Hawk	1	5/12	20	5/15	"	"	0	0	0	10
Reported by Mark Barber, Assistant Manager										

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Ruby Lake

For 12-month period ending August 31, 1968

Reported by Lynn Howard

Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat		(3) Use-days	(4) Breeding Population	(5) Production
	Type	Acreage			
North Sump I	Crops	0	Ducks	81,535	450
	Upland	10,000	Geese	3,240	8
	Marsh	4,000	Swans	576	0
	Water	0*	Coots	269,100	100
	Total	14,000	Total	354,451	558
Developed Units II	Crops	45	Ducks	958,030	4,500
	Upland	3,000	Geese	43,460	166
	Marsh	2,700	Swans	5,076	10
	Water	0*	Coots	2,287,700	4,800
	Total	5,745	Total	3,294,266	9,470
South Sump III	Crops	40	Ducks	998,800	4,050
	Upland	8,006	Geese	34,304	76
	Marsh	9,400	Swans	2,016	8
	Water	0*	Coots	807,400	5,100
	Total	17,446	Total	1,842,520	9,235
Total	Crops	85	Ducks	2,038,365	9,000
	Upland	21,006	Geese	81,004	250
	Marsh	16,100	Swans	7,168	18
	Water	0*	Coots	3,364,200	10,000
	Total	37,191	Total	5,491,237	19,268
	Crops		Ducks		
	Upland		Geese		
	Marsh		Swans		
	Water		Coots		
	Total		Total		
	Crops		Ducks		
	Upland		Geese		
	Marsh		Swans		
	Water		Coots		
	Total		Total		
	Crops		Ducks		
	Upland		Geese		
	Marsh		Swans		
	Water		Coots		
	Total		Total		

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.
- (5) **Production:** Estimated total number of young raised to flight age.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Ruby Lake

Months of May to August, 1968

(1) Species	(2) Density	(3) Young Produced	(4) Sex Ratio	(5) Removals	(6) Total	(7) Remarks	
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd. Estimated Total	Percentage	Hunting For Re- stocking For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage Grouse	Upland sa-ge, rabbitbrush and meadows 20,000 acres	80	5 20	1:1	0	225	Resident on and off use
California Valley Quail	Foothill drainages 225 acres	3	3 3	1:1	0	80	Resident population resulting from transplants
Chukar Partridge	Mountain foothills 8,000 acres	100	2 20	1:1	0	80	Resident population resulting from transplants
Gray Partridge	Mountain foothills 8,000 acres	160	0 12	1:1	0	50	Resident population resulting from transplants

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- | | |
|---------------------|--|
| (1) SPECIES: | Use correct common name. |
| (2) DENSITY: | Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. |
| (3) YOUNG PRODUCED: | Estimated number of young produced, based upon observations and actual counts in representative breeding habitat. |
| (4) SEX RATIO: | This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available. |
| (5) REMOVALS: | Indicate total number in each category removed during the report period. |
| (6) TOTAL: | Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons. |
| (7) REMARKS: | Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested. |

* Only columns applicable to the period covered should be used.

3-1750
Form NR-1
(Rev. March 1953)

W A T E R F O W L

REFUGE Ruby Lake

MONTHS OF September TO December, 1968

(1) Species	(2) Weeks of reporting period									
	9/1-9/7	9/8-9/21	9/22-10/5	10/6-12	10/13-19	10/20-26	10/27-11/2	11/3-9	11/10-16	11/17-23
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter	20	22	20	21	22	29	29	29	29	29
Geese:										
Canada	400			10	10	80	80	50	50	90
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	800	1500	2000	2300	2500	1200	1100	500	500	500
Black										
Gadwall	700	1100	1500	1600	1800	100	900	1500	500	500
Baldpate	200	3000	3500	3500	3000	900	900	200	200	200
Pintail	1100	400	300	500	800	900	1000	500	500	500
Green-winged teal	200	350	200	300	500	700	1100	200	200	200
Blue-winged teal	50	10	10	30						
Cinnamon teal	1500	200	200	150	100			50		
Shoveler	200	100	100	200	300	250	300	50	50	50
Wood	10	10								
Redhead	600	1000	800	900	1000	700	500	500	500	300
Ring-necked	200	100	150	170	200	50	50			50
Canvasback	900	150	100	200	400	900	900	900	900	500
Scaup	500	350	350	350	400	200	300	300	300	300
Goldeneye					100	50	50	50		50
Bufflehead				20	110	200	300	300	300	300
Ruddy	300	200	200	200	200	300	300	200	100	200
Other										
Total Ducks	7260	8470	9410	10100	11320	7260	7600	5200	4050	3650
Coot:	12000	16000	16000	17000	18000	25000	29000	11000	5000	5000

3 -1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL (Continuation Sheet)

REFUGE Ruby LakeMONTHS OF September TO December, 19 68

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	11/24-30	12/1-7	12/8-14	12/15-21	12/22-28	12/29-1/4				
Swans:										
Whistling		27							2989	
Trumpeter	21	29	29	29	29	29			2577	
Geese:										
Canada	90	20	20	20	20	20			6720	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	500	250	250	250	250	250			102,550	
Black										
Gadwall	500	250	250	250	250	250			90,160	
Baldpate	250	180	150	150	150	150			114,310	
Pintail	500	250	250	250	250	250			57,750	
Green-winged teal	250	30	30	30	30	30			30,450	
Blue-winged teal									700	
Cinnamon teal	20								13,540	
Shoveler	200	80	50	50	50	50			14,560	
Wood									110	
Redhead	400	100	100	100	100	100			53,900	
Ring-necked	50	100	100	100	100	100			10,640	
Canvasback	700	100	100	100	100	100			49,350	
Scaup	300	180	150	150	150	150			31,010	
Goldeneye	70	80	100	100	100	100			5,600	
Bufflehead	500	110	150	150	150	150			17,080	
Ruddy	400	100	100	100	100	100			21,700	
Other H. Merganser		10	20	20	20	20			630	
Total Ducks	1640	1850	1800	1800	1800	1800			616,070	
Coot:	1000	500	500	500	500	500			1,102,500	

(over)

	(5)	(6)	(7)	
	Total Days Use	Peak Number	Total Production	SUMMARY
Swans	5,866	229		Principal feeding areas <u>Shallow ponds, diked units,</u>
Geese	6,720	400		<u>open marsh, and spring heads.</u>
Ducks	616,070	11,320		Principal nesting areas <u>—</u>
Coots	1,102,500	29,000		
				Reported by <u>Lowell L. Napier, Assistant Refuge Manager</u>

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751

Form NR-1A
(Nov. 1945)MIGRATORY BIRDS
(other than waterfowl)Refuge Ruby LakeMonths of September to December 1968

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Eared Grege	Previous	Period	150	9/15	3	11/30				250
Pied-billed Grebe	2 "	"	75	9/15	still	present				125
Great Blue Heron	Permenant	Resident	60	10/15	"	"				100
Snowy Egret	Previous	period	100	9/15	1	9/30				150
Black-Crowned Night Heron	"	"	60	9/15	still	present				120
American Bittern	Permenant	resident	60	10/15	"	"				100
White-faced Ibis	Previous	period	200	9/15	1	9/30				250
Sandhill Crane	"	"	12	9/30	6	10/18				25
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	previous	period	250	9/1	still	present				400
Common Snipe	Permenant	Resident	50	9/1	"	"				120
Long-Billed Curlew	Previous	period	100	9/15	5	9/30				200
Spotted Sandpiper	Previous	period	100	9/15	20	9/30				500
Western Willet	"	"	100	9/1	5	9/30				200
Lesser Yellowlegs	"	"	50	9/1	20	10/15				75
American Avocet	"	"	100	9/1	5	9/30				150
California Gull	"	"	20	9/1	5	9/30				30
Forester's Tern	"	"	30	9/30	5	9/30				40
Black Tern	"	"	50	9/1	5	9/30				75

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove					
White-winged dove	Previous period	500	9/15	1	11/15
IV. Predaceous Birds:					
Golden eagle	Permanent	1	10/15	1	11/15
Duck hawk	-	-	-	-	-
Horned owl	Permanent	20	9/15	1	11/15
Magpie	-	400	11/15	-	-
Raven	-	50	11/15	-	-
Crow	Previous period	100	11/2	10	11/30
Turkey Vulture	-	10	10/1	2	11/10
Sharp-shinned Hawk	-	10	11/15	1	11/15
Long-legged Hawk	-	10	11/15	-	-
Bald Eagle	1	12/6	1	12/6	1
Marsh Hawk	-	30	11/15	1	11/15
Partridge Hawk	-	20	9/15	1	11/15
Reported by <u>LM</u>					

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1750c
Form NR-1C
(Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

Refuge Ruby Lake

Year 1968

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
1968-69 10/19-25	56	301	Redhead(53), Ruddy(16), Canvasback(14), Mallard(5), Bufflehead(5), Gadwall(3), Pintail(1), Widgeon(1), Shoveler(1), Ring-Necked(1), Goldeneye(1).	101	-	101	90	162
10/26-11/1	12	72	Redhead(3), Ruddy(3), Mallard(2)	8	1	9	15	12
11/2-8	6	24	0	0	-	0	10	5
11/9-15	2	2	Ring-Necked(1).	1	-	1	5	3
11/16-22	2	6	Shoveler(1).	1	-	1	5	3
11/23-29	2	8	Canvasback(1), Shoveler(1).	2	2	4	5	10
11/30-12/6	2	8	Goldeneye(1), Widgeon(1), Mallard(1).	3	1	4	5	10
12/7-13	1	3	0	0	1	1	5	5
12/14-20	1	4	Lesser Scaup(4), Goldeneye(1).	5	0	5	5	25
12/21-27	3	9	Widgeon(1), Goldeneye(1)	2	1	3	5	8
12/28-1/3	2	8	Widgeon(2), Mallard(1).	0	0	0	5	5
1/4-10	1	1	0	0	0	0	5	5
1/11-12	3	12	GW Teal(3), Mallard(2), Gadwall(1), Widgeon(1)	7	0	7	5	12

(over)

INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent. $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}.$

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Ruby Lake

Months of Sept. to Dec., 19 68

(1) Species	(2) Density	(3) Young Produced	(4) Sex Ratio	(5) Removals	(6) Total	(7) Remarks	
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'vd. Estimated Total	Percentage	Hunting For Re- stocking For Research	Estimated number using Refuge	Pertinent information not specificoally requested. List introductions here.
Sage Grouse	Upland sage, rabbitbrush and meadows, 20,000 acres.	-	-	-	0 0 0	225	On and off use of refuge.
California Valley Quail	Foothill drainages 225 acres.	-	-	-	0 0 0	80	Population resulting from transplants.
Chukar Partridge	Mountain foothills 8000 acres	-	-	-	0 0 0	50	"
Gray Partridge	Mountain Foothills	-	-	-	0 0 0	50	"
Note: Accuracy of data is poor. The only sightings are made incidental to other wildlife censuses or refuge work. The low populations do not justify specific censuses for upland game birds.							

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- | | |
|---------------------|--|
| (1) SPECIES: | Use correct common name. |
| (2) DENSITY: | Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. |
| (3) YOUNG PRODUCED: | Estimated number of young produced, based upon observations and actual counts in representative breeding habitat. |
| (4) SEX RATIO: | This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available. |
| (5) REMOVALS: | Indicate total number in each category removed during the report period. |
| (6) TOTAL: | Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons. |
| (7) REMARKS: | Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested. |

* Only columns applicable to the period covered should be used.

3-1753
Form NR-3
(June 1945)

BIG GAME

Refuge Ruby Lake

Calendar Year 1968

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
Mule Deer	Upland Sage, Rabbitbrush, and meadows. 27,000 Acres	10	0	0	0	0	0	0	0	0	-	1000*	100	Bucks 100; Does 224.
* migrating and wintering deer.														

Remarks:

Reported by _____

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

116000

DISEASE

Refuge Ruby Lake

Year 1968

Botulism None

Lead Poisoning or other Disease None

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Condition of vegetation and invertebrate life _____

Remarks _____

Kind of disease _____

Species affected _____

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks _____

3-1757
Form NR-7
(Rev. June 1960)

(1)

NONAGRICULTURAL COLLECTIONS, RECEIP AND PLANTINGS

Refuge Ruby Lake Year 19 68

Collections and Receipts (Seeds, rootstocks, trees, shrubs)							Plantings (Marsh - Aquatic - Upland)						
Species	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	o
							None						

- (1) Report agronomic farm crops on Form NR-8
(2) C = Collections and R = Receipts
(3) Use "S" to denote surplus

Total acreage planted:

Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

Remarks: _____

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Ruby Lake

County Elko

State Nevada

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Common rye	0	0	0	0	85	500 Bu.	85	Green browse, hay and mature grain(rye).	85
								Fallow Ag. Land	0

No. of Permittees: Agricultural Operations 0 Haying Operations 0 Grazing Operations 7

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
None				1. Cattle	1265	3299.16	5398.74	18,100
				2. Other horses	53	427.06	854.12	18,100
				1. Total Refuge Acreage Under Cultivation				85
Hay - Wild				2. Acreage Cultivated as Service Operation				85

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
None				1. Cattle	1040	2555.44	3,833.16	5391
				2. Other horses	16	128.86	257.72	5391
				1. Total Refuge Acreage Under Cultivation				
Hay - Wild				2. Acreage Cultivated as Service Operation				0

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

REFUGE GRAIN REPORT

Refuge Ruby LakeMonths of January through December, 1968

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Henchen barley	300	100	400			125	125	275		275	
Crested wheat grass	7	74	81					81	81		
Millet	19	0	19					19		19	
Roundstem bullrush	2		2					2	2		
Milo	5		5					5		5	

(8) Indicate shipping or collection points Elko, Nevada - 60 miles(9) Grain is stored at headquarters granary

(10) Remarks

*See instructions on back.

(10) Remarks

NR-8a

(8) Grain is stored at

REFUGE GRAIN REPORT

(8) Indicate shipping or collection points

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

16-61482-1 U. S. GOVERNMENT PRINTING OFFICE

Variety	On Hand Beginning of Period	Received During Period	Total	Disposition			Total	On Hand End of Period	Proposed or Suitable Use		
				Shipped	Seeded	Feed			Seed	Feed	Surplus
(1)	(2)	(3)	(4)	(5) Grain Disposed of			(6)	(7)	(8) Proposed or Suitable Use		

Refuge

Months of

through

19

REFUGE GRAIN REPORT

TIMBER REMOVAL

Refuge Ruby Lake Year 1946

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
				None				

Total acreage cut over..... Total income.....

No. of units removed B. F. Method of slash disposal.....

Cords.....

Ties.....

.....

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

Refuge

Ruby Lake

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number

Reporting Year

1968

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5/30/68	Sagebrush Rabbitbrush		700	2-4D Iso-Octyl Ester	350 gallons	3 lbs acid Equivalent per acre	Diesel oil 2½ gallons per acre	Aerial Spraying

10. Summary of results (continue on reverse side, if necessary)

Estimated 95% kill on sagebrush but only 50% on rabbitbrush. A better evaluation of the kill will be made in the spring of 1969 when live plants will turn green again.